cesses from the succeeding lumbar and caudal vertebræ are plainly continuations of the parapophysial series.

This repetition of a piscine structure, although an exceptional one in the fish-like mammalia, has appeared to me to be so interesting a fact, as to be worth recording. I am not aware, at least, that it has been previously noticed.

XLIII. — *Remarks on* Libellula Brodiei (*Buckman*), *a Fossil Insect from the Upper Lias of Dumbleton, Gloucestershire.* By Professor Buckman, F.G.S., F.L.S.

As our associate, the Rev. P. B. Brodie, is leaving this district, I have much pleasure in calling the attention of the Members of the Cotteswold Club to the interesting discoveries of fossil insects from the Lias, which he has principally made within the limits of our more immediate operations, namely in the county of Gloucester; and this I think right to do now with the more immediate object of settling a question of nomenclature, and in order that our 'Proceedings' may perpetuate his name as attached to one of the most beautiful and perfect specimens he has yet discovered, to whom the following remarks will show that it was originally dedicated. In order to render this the more clear, it will be necessary to state that while Mr. Brodie was prosecuting his inquiries in the *Lower Lias*, in a band of which, termed by him the 'Insect Limestone,' he succeeded in exhuming remains of almost every class of Insecta, I had the pleasure of finding among others a fine wing of *Libellula* in a thin band of limestone in the *Upper Lias*: this discovery was announced to the Geological Society in a short paper "On the occurrence of Remains of Insects in the Upper Lias of the county of Gloucester;" and in vol. iv. part 1. page 211 of the 'Proceedings' of the Geological Society will be found the following remarks:— "The remains of insects comprise one species of *Libellula*, which, from the reticulations of the fine wing, seems to belong to the genus *Æshna*, and has been named by Mr. Buckman *Æshna Brodiei* in honour of Mr. Brodie."

Between this (June 21, 1843) and the publication of the 2nd edition of the 'Outlines of the Geology of the neighbourhood of Cheltenham,' in 1845, I had the pleasure of discovering another fine wing, and this and the previous one were first figured in that work, tab. 8. figs. 1 & 2, with the following description:—

"Fig. 1. *Posterior* wing of *Æshna Brodiei*.
"Fig. 2. *Anterior* wing of ditto."

showing that I had arrived at the conclusion, that these two wings should both be referred to the same species.

However, later in the same year, Mr. Brodie published his highly valuable 'History of the Insects of the Secondary Rocks,' in which work (pl. 8. figs. 1 & 2) the same wings are beautifully figured by Mr. Westwood, with the following explanatory remarks:—

"Plate 8. fig. 1. A remarkably fine wing of *Libellula*.
"Plate 1. fig. 2. An equally fine wing of an *Agrion*."

These at p. 101–2 of the same work are named—

"Fig. 1. *Libellula Brodiei*.
"Fig. 2. *Agrion Buckmanni*."

So that here we see that not only were these specimens doubted as belonging to the same species, but are positively assigned to distinct genera.

However, in 1848, Mr. Brodie's labours were rewarded by finding a most perfect *Libellula* in the same bed, with the four wings attached to the nearly perfect body. This unique specimen will be found figured in the 'Quarterly Journal of the Geological Society,' vol. v. pl. 2, and an examination of the fossil shows that the anterior wing is identical with that referred to *Agrion Buckmanni*, and the posterior to that of *Libellula Brodiei*; and at page 35 of the 'Journal' for 1848 is the following statement:—"According to Mr. Westwood, the wing figured in my work on 'Fossil Insects,' p. 8. f. 2, is not an *Agrion* as there supposed, but belongs to the same species as the one above described" (*Æshna Brodiei*, Buckman); and further, "Mr. Westwood considers that it will be better to adopt *Libellula* as the generic title, while the peculiar veining of the wings will form the ground for a provisional subgeneric one, which he names *Heterophlebia*; hence I propose provisionally to name it *Libellula* (*Heterophlebia*) *dislocata*, Brodie*."

Now it is quite clear that according to proper custom the specific name should not have been altered, so that, as the two specimens cited were after all found to resolve themselves as I supposed into one specific form, however my generic name might have been changed—for which I can see but little reason—yet the specific one should have remained intact. This beautiful specimen therefore should be designated as *Libellula Brodiei* (Buckman), as it was originally dedicated to the author of 'Fossil Insects' when even a single wing was one of the best insect specimens that had been obtained, and he is not the less worthy of having his name preserved for the perfect example. These remarks are made not only with the hope of correcting

* Brodie in Journal of Geol. Soc. vol. v. p. 35.

what I have deemed an error, but they may be useful as showing us how cautious we should be in founding genera from fragments: this is a most prolific cause of synonyms, with which no science is so overloaded as geology.

Cirencester, Sept. 1853.

XLIV.—*On* Gallionella ferruginea (*Ehrenb.*).

By J. W. Griffith, M.D., F.L.S.

In the water of bogs and pools, especially those containing much iron in solution, there are occasionally found microscopic organisms, myriads of which are aggregated around the living or dead stems of plants contained in the water, and forming around them reddish or yellowish brown flakes or filmy masses. The general appearance of these organisms has been well described by Ehrenberg in his great work on the Infusoria*, by whom they were placed in the genus *Gallionella*, with the specific name *ferruginea*. Mr. Ralfs places them among the Diatomaceæ, in the genus *Melosira*, with the specific name *ochracea* †. As the writings of these authors are in every one's hands, we shall pass them over. The latest writer, Kützing, gives the following generic and specific characters :—

"*Glœotila*, Kützing.—Trichomata eramosa viridia mucosa, ex cellulis monogonimicis composita.—(Paludosæ, inundatæ.) *Gl. ferruginea*, Kg. Phyc. Germ. p. 191.—*G. ochracea*, trichomatibus brevissimis moniliformibus, articulis ovato-globosis. Diam. $\frac{1}{2000}'''$. —*Gallionella ferruginea*, Ehrenb. Infus. t. 10. f. 7.—*Melosira minutula*, Brébiss. Falais. p. 42. pl. 5.—In fontibus martialibus (v.v.). —Cf. Kg. Bacillar. p. 56, *Gallionella ferruginea*."

Neither of these observers has detected their true structure; nor is this to be wondered at, for the filaments are exceedingly minute (varying from the $\frac{1}{5000}$ to $\frac{1}{30,000}$ inch in breadth, but generally from $\frac{1}{10,000}$ to $\frac{1}{20,000}$), and it requires no ordinary management of the microscope to render it distinct. Each filament consists of two interlacing fibres, forming flattened compound spirals. The fibres are coloured by peroxide of iron; but they contain no silex, or at least not more than a mere trace, such as is naturally invariably associated with the peroxide. If the filaments be macerated for some time in distilled water, the fibres will separate; but they may be clearly distinguished in the compound filaments with the aid of a good object-glass of high power (400 to 500 diameters); in fact they form an admirable test-

* See Pritchard's History of Infusorial Animalcules, 1852.

† Ann. Nat. Hist. (1843) vol. xii. p. 351.